

**CLASS I NON-HAZARDOUS  
PERMIT APPLICATION FOR  
PROPOSED BDW-1  
THROUGH BDW-5**

**WOODHAVEN TERMINAL,  
WAYNE COUNTY, MICHIGAN**

BUCKEYE TERMINALS, LLC

PROJECT NO.: 192065A  
DATE: DECEMBER 2017

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SUITE 200  
16200 PARK ROW  
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December 15, 2017

Stephen Jann, UIC Branch Chief  
United States Environmental Protection Agency, Region 5  
77 W. Jackson Blvd.  
Chicago, IL 60604-359

Subject: Submission of Class I UIC Non-Hazardous Permit Application for Proposed Wells BDW-1 through BDW-5 and Class III Area Permit for Proposed Wells CW-1 through CW-4

Dear Sir:

On the behalf of Buckeye Terminals, LLC, please find the following permit applications for proposed Class I non-hazardous injection wells (BDW-1 through BDW-5) and Class III area permit application for proposed cavern wells (CW-1 through CW-4) to be installed at Buckeye Terminals, LLC, Woodhaven Terminal in Wayne County, Michigan. The following is included with this transmittal letter.

- (2) Prints of Class I Non-Hazardous Permit Application for Proposed BDW-1 Through BDW-5
- (2) Prints of Class III Area Permit Application for Proposed Caverns Wells CW-1 through CW-4
- (2) USB Drives Containing PDF Files of Abovementioned Permit Applications, Complete with Bookmarks and Hyperlinks

Kind regards,

Brandon Schulte

BMS/bms

Encl.

cc: Brian Ball, Buckeye Partners L.P.

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16200 Park Row  
Houston, TX 77064

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# SIGNATURES

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Brandon Schulte, P.E.  
Mgr. Permitting & Well Integrity

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*APPENDICES*

- A EPA CHECKLIST
- B WELL RECORDS (SEE ATTACHMENT C)
- C DRILLING FLUID PROGRAM (SEE ATTACHMENT L)
- D WASTE ANALYSIS PLAN (SEE ATTACHMENT P)
- E EPA PLUGGING AND ABANDONMENT PLAN - EPA FORM 7540-14 (SEE ATTACHMENT Q)

# ACRONYMS

AB-LOC	Abandoned Location
AOR	Area of Review
bbls	barrels
bgs	below ground surface
BHA	Bottom Hole Assembly
BOP	Blowout Preventer
BWOC	Percent of material added to cement
BWOW	Percent of a material added to a cement slurry based on the weight of water
CESQG	Conditionally Exempt Small Quantity Generator
cf/sk	cubic foot per sack
D&A	Dry and Abandoned
EIS	Emissions Inventory System
EPA	Environmental Protection Agency - Region 5
gal/sk	gallons per sack
gpm	gallons per minute
GSTG	Liquified Petroleum Gas Storage - Active
LCM	Solid material introduced into a mud system
md	millidarcy
MD	measured depth
MDEQ	Michigan Department of Environmental Quality
mg/L	milligram per liter
MIT	Mechanical Integrity Test
NPDES	National Pollutant Discharge Elimination System
PPF	pounds per foot
ppg	pounds per gallon
psi	pound per square inch
psi/ft	pound per square inch per foot
psig	pounds per square inch gauge
RCRA	Resource Conservation and Recovery Act
SWDOP	Liquified Petroleum Gas Storage - Plugging Approved
SWPPP	Stormwater Pollution Prevention Plan

TD	Total Depth
TDS	Total Dissolved Solids
TSDF	Hazardous Waste Treatment, Storage, or Disposal Facilities
TVD	Total Vertical Depth
UIC	Underground Injection Control
USDW	Underground Source of Drinking Water



# APPLICATION INTRODUCTION

Buckeye Terminals, LLC ("Buckeye") is seeking permit application approval from the Environmental Protection Agency - Region 5 (EPA) Underground Injection Control (UIC) for non-hazardous Class I injection wells (brine disposal wells) to be installed at Buckeye Woodhaven Terminal in Wayne County, Michigan. The five proposed non-hazardous injection wells are to be used for disposal of brine associated with the development and maintenance of below-ground salt cavern hydrocarbon storage wells.

Buckeye Terminals, LLC currently operates a terminal at Woodhaven that uses surface tanks to store gasoline, diesel fuel, and ethanol. Approximately 990,000 barrels (bbls) of tank storage is present at the Woodhaven Terminal. An additional four solution-mined salt cavern hydrocarbon storage wells are proposed for the facility. The salt cavern wells permit application, US EPA UIC Class III Permit Application, is provided in a separate application document. The salt caverns will be developed in the Salina B salt formation by injecting fresh water and producing brine. The five proposed non-hazardous injection wells are to dispose of produced brine during cavern development and any excess brines created through normal cavern operation.

The proposed wells will operate under the UIC program 40 CFR 146.

Enclosed in this permit application are copies of EPA Form 7520-6 completed for each proposed well along with associated attachments. Attachments are keyed to the letter designations indicated in the instructions for EPA Form 7520-6. To ease agency review, the application has been prepared to the format outlined in the EPA Region 5 Permit Application Checklist for Class I Injection Wells in Michigan/Indiana (completed checklist included in Appendix A).



United States Environmental Protection Agency

Underground Injection Control  
Permit Application(Collected under the authority of the Safe Drinking  
Water Act. Sections 1421, 1422, 40 CFR 144)

I. EPA ID Number

T/A

C

U

Read Attached Instructions Before Starting  
For Official Use OnlyApplication approved  
mo day yearDate received  
mo day year

Permit Number

Well ID

FINDS Number

## II. Owner Name and Address

Owner Name

Buckeye Terminals, LLC

Street Address

One Greenway Plaza

Phone Number

(832) 214-6026

City

Houston

State

TX

ZIP CODE

77046

## III. Operator Name and Address

Owner Name

Buckeye Terminals, LLC

Street Address

20755 West Road

Phone Number

City

Woodhaven

State

MI

ZIP CODE

48483

## IV. Commercial Facility

☒ Yes  
☐ No

## V. Ownership

☒ Private  
☐ Federal  
☐ Other

## VI. Legal Contact

☒ Owner  
☐ Operator

## VII. SIC Codes

4226

## VIII. Well Status (Mark "x")

☐ A

Operating

Date Started  
mo day year
☐ B

Modification/Conversion

☒ C

Proposed

## IX. Type of Permit Requested (Mark "x" and specify if required)

☒ A

Individual

☐ B

Area

Number of Existing Wells

0

Number of Proposed Wells

1

Name(s) of field(s) or project(s)

BDW-1

## X. Class and Type of Well (see reverse)

A. Class(es)  
(enter code(s))

I

B. Type(s)  
(enter code(s))

I

C. If class is "other" or type is code "x," explain

D. Number of wells per type (if area permit)

## XI. Location of Well(s) or Approximate Center of Field or Project

Latitude			Longitude			Township and Range							
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line
2	1	30	12	57	39	22	04S	10E	NE				

## XII. Indian Lands (Mark "x")

☐ Yes  
☒ No

## XIII. Attachments

(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)

For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A--U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.

## XIV. Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

A. Name and Title (Type or Print)

Carl A. Ostach, VP Domestic Field Operations

B. Phone No. (Area Code and No.)

(610) 904-4262

C. Signature

Carl A. Ostach

D. Date Signed

12/15/17





United States Environmental Protection Agency

# Underground Injection Control Permit Application

(Collected under the authority of the Safe Drinking Water Act, Sections 1421, 1422, 40 CFR 144)

I. EPA ID Number

T/A

C

Read Attached Instructions Before Starting  
For Official Use Only

Application approved  
mo day year

Date received  
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FINDS Number

## II. Owner Name and Address

Owner Name

Buckeye Terminals, LLC

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One Greenway Plaza

City

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State

TX

Phone Number

(832) 214-6026

ZIP CODE

77046

## III. Operator Name and Address

Owner Name

Buckeye Terminals, LLC

Street Address

20755 West Road

City

Woodhaven

State

MI

Phone Number

ZIP CODE

48483

## IV. Commercial Facility

☒ Yes  
☐ No

## V. Ownership

☒ Private  
☐ Federal  
☐ Other

## VI. Legal Contact

☒ Owner  
☐ Operator

## VII. SIC Codes

4226

## VIII. Well Status (Mark "x")

☐ A.

Operating

Date Started

mo day year

☐ B. Modification/Conversion☒ C. Proposed

## IX. Type of Permit Requested (Mark "x" and specify if required)

☒ A. Individual☐ B. Area

Number of Existing Wells

0

Number of Proposed Wells

1

Name(s) of field(s) or project(s)

BDW-2

## X. Class and Type of Well (see reverse)

A. Class(es)  
(enter code(s))

1

B. Type(s)  
(enter code(s))

1

C. If class is "other" or type is code 'x,' explain

D. Number of wells per type (if area permit)

## XI. Location of Well(s) or Approximate Center of Field or Project

Latitude			Longitude			Township and Range							
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line
2	1	28	12	57	39	22	04S	10E	NW				

## XII. Indian Lands (Mark "x")

☐ Yes  
☒ No

## XIII. Attachments

(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)

For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A--U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.

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A. Name and Title (Type or Print)

Carl A. Ostach, VP Domestic Field Operations

B. Phone No. (Area Code and No.)



(610) 904-4262

C. Signature

D. Date Signed

12/15/17



 <b>United States Environmental Protection Agency</b> <b>Underground Injection Control</b> <b>Permit Application</b> <i>(Collected under the authority of the Safe Drinking Water Act, Sections 1421, 1422, 40 CFR 144)</i>		I. EPA ID Number																																												
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<input type="checkbox"/> A. Operating	Date Started mo    day    year	<input type="checkbox"/> B. Modification/Conversion	<input checked="" type="checkbox"/> C. Proposed																																											
IX. Type of Permit Requested (Mark "x" and specify if required)																																														
<input checked="" type="checkbox"/> A. Individual	<input type="checkbox"/> B. Area	Number of Existing Wells 0	Number of Proposed Wells 1	Name(s) of field(s) or project(s) BDW-3																																										
X. Class and Type of Well (see reverse)																																														
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			T/A C
Read Attached Instructions Before Starting For Official Use Only			
Application approved mo day year		Date received mo day year	
Permit Number		Well ID	
FINDS Number			
II. Owner Name and Address		III. Operator Name and Address	
Owner Name Buckeye Terminals, LLC		Owner Name Buckeye Terminals, LLC	
Street Address One Greenway Plaza		Street Address 20755 West Road	
Phone Number (832) 214-6026		Phone Number	
City Houston		City Woodhaven	
State TX		State MI	
ZIP CODE 77046		ZIP CODE 48483	
IV. Commercial Facility		V. Ownership	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other	
VI. Legal Contact		VII. SIC Codes	
<input checked="" type="checkbox"/> Owner <input type="checkbox"/> Operator		4226	
VIII. Well Status (Mark "x")			
<input type="checkbox"/> A. Operating		<input type="checkbox"/> B. Modification/Conversion	
Date Started mo day year		<input checked="" type="checkbox"/> C. Proposed	
IX. Type of Permit Requested (Mark "x" and specify if required)			
<input checked="" type="checkbox"/> A. Individual		<input type="checkbox"/> B. Area	
Number of Existing Wells 0		Number of Proposed Wells 1	
		Name(s) of field(s) or project(s) BDW-4	
X. Class and Type of Well (see reverse)			
A. Class(es) (enter code(s))		B. Type(s) (enter code(s))	
1		I	
C. If class is "other" or type is code 'x,' explain		D. Number of wells per type (if area permit)	
XI. Location of Well(s) or Approximate Center of Field or Project			
Latitude		Longitude	
Deg Min Sec		Deg Min Sec	
27 1 27		12 57 43	
Township and Range			
Sec Twp Range 1/4 Sec		Feet From Line Feet From Line	
22 04S 10E NE			
XII. Indian Lands (Mark 'x')			
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
XIII. Attachments			
(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)			
For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A-U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.			
XIV. Certification			
I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)			
A. Name and Title (Type or Print)		B. Phone No. (Area Code and No.)	
Carl A. Ostach, VP Domestic Field Operations		(610) 904-4262	
C. Signature		D. Date Signed	
		12/15/17	



 <b>United States Environmental Protection Agency</b> <b>Underground Injection Control</b> <b>Permit Application</b> <small>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</small>		I. EPA ID Number													
			T/A	C											
Read Attached Instructions Before Starting For Official Use Only															
Application approved mo    day    year		Date received mo    day    year		FINDS Number											
II. Owner Name and Address			III. Operator Name and Address												
Owner Name Buckeye Terminals, LLC			Owner Name Buckeye Terminals, LLC												
Street Address One Greenway Plaza		Phone Number (832) 214-6026	Street Address 20755 West Road												
City Houston	State TX	ZIP CODE 77046	City Woodhaven	State MI											
				ZIP CODE 48483											
IV. Commercial Facility		V. Ownership		VI. Legal Contact											
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other		<input checked="" type="checkbox"/> Owner <input type="checkbox"/> Operator											
				4226											
VIII. Well Status (Mark "x")															
<input type="checkbox"/> A. Operating		<input type="checkbox"/> B. Modification/Conversion		<input checked="" type="checkbox"/> C. Proposed											
Date Started mo    day    year															
IX. Type of Permit Requested (Mark "x" and specify if required)															
<input checked="" type="checkbox"/> A. Individual <input type="checkbox"/> B. Area		Number of Existing Wells 0	Number of Proposed Wells 1	Name(s) of field(s) or project(s) BDW-5											
X. Class and Type of Well (see reverse)															
A. Class(es) (enter code(s))	B. Type(s) (enter code(s))	C. If class is "other" or type is code 'x,' explain		D. Number of wells per type (if area permit)											
I	I														
XI. Location of Well(s) or Approximate Center of Field or Project				XII. Indian Lands (Mark 'x')											
Latitude		Longitude		Township and Range											
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line		
2	1	24	12	57	43	22	04S	10E	NE						
XIII. Attachments															
(Complete the following questions on a separate sheet(s) and number accordingly; see instructions) For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A--U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.															
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A. Name and Title (Type or Print) Carl A. Ostach, VP Domestic Field Operations												B. Phone No. (Area Code and No.) (610) 904-4262			
C. Signature <i>Carl A. Ostach</i>												D. Date Signed 12/15/17			

## A. AREA OF REVIEW

Buckeye Terminals, LLC Woodhaven Terminal is located in south-central Wayne County, Michigan, approximately 15 miles southwest of the city of Detroit. Five injection wells are proposed to be installed at this terminal.

The Area of Review (AOR) is the area surrounding an injection well that is set at a minimum fixed radius of 2 miles for non-hazardous wells. Well data available from public records within the AOR are tabulated in Table A-1 (non-freshwater) and Table A-2 (freshwater). Twenty-three (23) non-freshwater wells and eight freshwater wells were identified within the AOR. The non-freshwater wells include:

- Active liquefied petroleum gas storage – 8 wells;
- Gas storage (plugging approved) - 8 wells;
- Brine disposal - 1 well;
- Dry and abandoned - 4 wells; and
- Abandoned locations – 2 wells.

The above wells include active storage caverns at the site operated by Marathon Oil Co. (five storage caverns, one disposal well, and three brine recovery wells). The storage caverns at the site formerly operated by Phillips Petroleum Co. (two caverns and one brine disposal well) and Mobil Oil Co. (four caverns and two brine disposal wells), but have since been plugged and abandoned.

Two of the wells reviewed within the AOR penetrate the top of the confining zone, Utica-Trenton, which is projected to occur at a depth of approximately 2,060 feet below ground surface (bgs). Well API # 21163004199000 is listed as dry and abandoned. Well API #21163001468000 is a salt water disposal well operated by Marathon Pipe Line LLC (original operator Marathon Oil Co). A geophysical log recorded downhole in Well API #21163001468000 is shown on the cross section provided on Figures F-4 and F-5 in Attachment F. As demonstrated in Attachment C, no corrective action is necessary for this site.

Surrounding wells, with the exception of shallow monitoring wells and borings, are shown on the map provided in Attachment B.

## List of Tables in Attachment A

Table A-1	Non-Freshwater (Oil and Gas) Wells in Area of Review
Table A-2	Freshwater Wells in 2-Mile Area of Review